disease characteristics at diagnosis were as follows (no. of patients): male (22), female (11), median age 56 years (range 39–70), Stage II (9), Stage III (24), IgG (22), IgA (9), free light chain (2). Median paraprotein at initiation of consolidation was 0 (range 0–3.6) (n = 33), day 1 cycle 4 was 0.1 (range 0–2.1) (n = 23), and at end of study was 0.35 (range 0–3.4) (n = 20). With a median follow up of 14 months, disease progression has occurred in 5 patients with 1 death. Fourteen patients (42%) experienced reactivation of VZV, 2 patients had human herpes virus 6 reactivation, and 1 patient had oral herpes simplex virus reactivation, all requiring therapy. The median absolute lymphocyte count at the onset of viral reactivation was 1336/mcl (range = 600–4800/mcl). A significant difference was seen in the mean CD8 count just prior to transplantation between those patients with viral reactivation (243, range 77–685) and the rest of the study population (392, range 87–1339) (P = .03). The median time from enrollment to VZV reactivation was 189 days (range 25–375). Ten patients had grade 1/2 and none had grade 3/4 neuropathy at study enrollment. At initiation of post transplant bortezomib 21 (64%) had grade 1/2 neuropathy and 1 (3%) had grade 3/4 neuropathy. Treatment emergent neuropathy on once weekly bortezomib was seen in only 3 patients (9%), necessitating dose reduction (1 patient) or discontinuation of therapy (2 patients). No grade 3/4 thrombocytopenia or neutropenia was observed with consolidation bortezomib. We conclude that bortezomib when administered pre- and post HDCT in MM patients results in a very high rate of viral reactivation. This finding may be explained by a decrease in circulating CD8 T cells and has implications for future clinical trials of bortezomib in this setting.

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SALVAGE NON-MYELOABLATIVE ALLOGENEIC TRANSPLANTATION AFTER FAILURE OF AN AUTOLOGOUS TRANSPLANTATION IN MULTIPLE MYELOMA

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Introduction: Salvage therapy for patients relapsing after an autologous stem cell transplant for multiple myeloma is not well defined. Allogeneic stem cell transplantation with a reduced-intensity preparative regimen has been one of the approaches used in this setting. We analyzed the outcomes of 30 patients who underwent a reduced-intensity allogeneic transplant after disease progression from the first autologous transplant. **Methods:** Median age was 51 years (range 32–65). Twenty-two patients underwent transplants from a related donor (21 HLA-identical, 1 with a single class 1 antigen mismatch), while 8 from an unrelated donor (7 HLA-identical, one with a single DQ mismatch). Preparative regimen in 28/30 patients was a combination of fludarabine 30 mg/m2 × 4 days and melphalan 70 mg/m2 IV × 2 days (24 patients), while 2 patients received fludarabine 25 mg/m2 IV × 5d and cyclophosphamide 1g/m2 IV × 3d. Patients undergoing unrelated donor transplants also received the rabbit ATG. Tacrolimus and methotrexate were used for GVHD prophylaxis. The median interval between the first and the second transplant was 18 months. Seventeen patients had resistant and progressive disease. These patients had received a median of 5 chemotherapy regimens prior to transplant. In 21/30 patients with available cytogenetic studies, 14 were normal and 7 abnormal. **Results:** Twenty-one of the 30 patients (70%) achieved a complete (8) or partial response (13). With a median follow up of 19 months (4–75), 1-year progression-free survival (PFS) was 24% and 1-year overall survival (OS) was 59%. Median PFS and OS were 7 and 16 months, respectively. One-year non-relapse mortality was 17%. Acute grade II/IV GVHD was seen in 9/30 (30%) and chronic GVHD in 13/30 (43%: limited 16%, extensive 27%) patients. Disease progression remained the major cause of failure with 14 (46%) dying of progressive disease. On univariate analysis, an interval of <1 year between two transplants was a predictor of early progression (P = .02) and the presence of progressive/ resistant disease showed a trend towards shorter overall survival (P = .07). **Conclusions:** Salvage allogeneic transplantation can achieve responses in 70% of heavily pretreated patients, with acceptable toxicity and durable remissions in patients treated more than a year after a prior autograft. Patients with chemosensitive disease seem to have a longer overall survival.

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SECOND AUTOLOGOUS STEM CELL TRANSPLANTATION AS SALVAGE THERAPY IN PATIENTS WITH RELAPSED MULTIPLE MYELOMA: IMPROVED OUTCOMES IN PATIENTS WITH LONGER DISEASE FREE INTERVAL AFTER FIRST AUTOLOGOUS STEM CELL TRANSPLANTATION

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Background: Single autologous stem cell transplant (ASCT) is considered the standard of care for younger multiple myeloma (MM) patients (pts). However, it is not curative and virtually all patients will ultimately relapse. The role of a second ASCT as salvage therapy is unclear. **Methods:** Retrospective review of all MM pts who received a second ASCT as salvage therapy at Princess Margaret Hospital. **Results:** Between March 1992 and September 2005, 40 MM pts received a second ASCT for relapsed MM at our institution. Median age was 58 years (range 39–69) at second transplant. Twenty-one pts were male. Immunoglobulin subtype included IgG (25), IgA (9), light chain (3), nonsecretory (2), and IgM(1). Median initial albumin was 42g/l (27–49). In 20 patients in whom cytogenetic studies were available, 3 were positive for the 13q deletion. Transplant conditioning regimen for first transplant was melphalan (MEL) + TBI ± etoposide (E) in 6, MEL alone in 27, and other regimens in 7 pts. Second ASCT conditioning consisted of MEL + TBI ± E in 2, MEL alone in 37 and BU + CY in 1. Median CD34 counts were 10.96×10^6/L and 4.85×10^6/L for first and second ASCT, respectively. The median time from diagnosis to first transplant was 9 months (2–74). The median time to relapse after the first transplant was 29 months (6–85), with a median interval between transplants of 39 months (6–99). The median time to progression after the second transplant was 14 months (5–56). One transplant-related death occurred. At median follow-up after second ASCT of 19 months (1–74), 29 (73%) pts are alive. Nineteen (48% of all pts) are free of disease progression. The median progression-free survival (PFS) was 18 months and median overall survival (OS) was 41 months after second ASCT. Long term progression-free status based on the progression-free interval after first transplant is summarized in (Table1). **Conclusions:** (1) Second ASCT is a feasible and safe salvage therapy in relapsed MM patients; (2) second ASCT is effective in providing median progression-free survival of 18 months and median overall survival of 41 months after second ASCT; (3) the longer the disease free interval after first ASCT the more effective second ASCT is at extending both progression-free survival and overall survival.

Table 1. *Survival Based on Time to Relapse After 1st ASCT*

Interval from 1st ASCT to Relapse	Number of Patients	Median Progression Free Survival after 2nd ASCT	2 Year Overall Survival After 2nd ASCT
< 24 months	13	17 months	32%
24–36 months	13	29 months	60%
> 36 months	14	54 months	88%

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MCVAC REGIMEN IN AUTOLOGOUS PERIPHERAL BLOOD STEM CELL TRANSPLANTATION FOR HIGH-RISK DIFFUSE LARGE B CELL LYMPHOMA (DLBCL)

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Background: High dose chemotherapy followed by autologous stem cell transplantation in high-risk or relapsed aggres-